C-3049

Industry Working Group

November 18, 2004

Examination of non-LNP Capable Carriers Donating Thousands Blocks to Pooling Administrator

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1 Executive Summary

On November 13, 2003 the Nebraska Public Service Commission issued order C-3049 (*"In the Matter of the Commission, on its own motion, to conduct an investigation into possible solutions for extending the life of area codes 308 and 402"*) In addition to collecting information about the capabilities of the various Nebraska local exchange carriers, the order also solicited input for alternative methods of conserving numbering resources in the 308 and 402 area code. One of the methods proposed was the donation of unused thousands-blocks by carriers that were not Local Routing Number (LRN) / Local Number Portability (LNP) capable.

This working group was tasked with investigating and describing the proposed methodology that would enable an incumbent local exchange carrier (donor) to donate uncontaminated blocks to the numbering resource pool without having LRN technology installed on the donor switch. The donor switch will not be LNP capable. However, all other carriers using donated blocks will be capable of supporting LNP.

Under the proposed methodology a non-LNP capable carrier in a rate center would donate uncontaminated thousands-blocks to the pooling administrator. LNP capable carriers requiring resources in the rate center should use the donated blocks instead of opening a new code. All customers would dial their calls in the normal manner. The non-LNP capable donor carrier would use a local switch translation table to determine how to route the calls and be responsible for routing of the calls. The exchange of traffic between carriers using the pooled thousands-blocks will be in accordance with the prevailing FCC and/or state interconnection rules. The non-LNP capable donating carrier will bear the query and transport expense of calls requiring N-1 dips.

Assumptions made in evaluating the proposed methodology are listed in Section 2.0. The proposed methodology is described in detail in Section 3.0 and a matrix of the various call scenarios is provided in Section 4.0.

Because the proposed methodology will utilize current database information, switch operations, and transport in a manner not considered before, there are possible regulatory and industry documents and procedures that will require examination and industry approval if this plan were to be implemented. The possible documents and procedures identified by this work group are contained in Section 5.0

Potential areas of cost impact are identified in Section 6.0.

To provide a point of reference the status of the current numbering resources in Nebraska are presented in Section 7.0.

Section 8.0 presents a review of the technical issues identified and discussed during the working group efforts.

The conclusions and recommendations are provided in Section 9.0. In addition, areas of concern relating to input into the various databases, utilization of the information from the databases, switch operations, and call transport may require testing prior to implementation are documented in Section 9.0. While these conclusions and recommendations were developed by an industry represented working group, it does not represent all of the opinions nor does it imply an obligation by those carriers who have participated in the working group.

2 Assumptions

2.1. This proposal is specifically intended to conserve numbering resources by the use of Thousands-Block Number Pooling (TBNP) without the donating carrier having to implement Local Routing Number (LRN) technology.

2.2. This proposal does not investigate or address any “competitive issues” associated with Local Number Portability (LNP).

2.3. Carriers and/or Service Providers (SP) exempted from LNP by the FCC (Paging and Tier 3 CMRS) will not participate in this methodology.

2.4. The donor carrier has been given a waiver (FCC) or suspension (state) from LNP obligations.

2.5. The donor switch does not have LNP software installed.

2.6. The donor switch does not have LRN software installed.

2.7. The non-LNP donor carrier will donate only uncontaminated spare blocks from their NPA-NXX inventory.

2.8. The non-LNP donor carrier will designate their NPA-NXX as LNP capable in the BIRRDS/LERG.

2.9. The non-LNP donating carrier will be required to establish a relationship with NPAC.

2.10. The non-LNP donor carrier will designate their NPA-NXX as LNP capable in the NPAC

2.11. After the non-LNP donor carrier has donated the uncontaminated blocks to the Pooling Administrator, a carrier needing numbering resources in the donor carrier’s rate center must be LRN and LNP capable to use donated thousands-blocks as identified in industry guidelines.

2.12. The exchange of traffic between carriers using the pooled thousands-blocks will be in accordance with the prevailing FCC and/or state interconnection rules. The non-LNP capable donating carrier will bear the responsibilities of query and transport expense of calls requiring N-1 dips.

2.13. Customers of the non-LNP donor carrier will not be able to port their numbers to other carriers.

2.14. Customers of carriers using donated blocks will not be able to port their number to the non-LNP donor carrier.

2.15. Carriers who are LRN/LNP capable are not required to take blocks from the pool of numbers donated by non-LNP donors if the available blocks do not meet the needs of their customer.

2.16. Because calls to 911 by TN’s in any of the blocks will continue to be processed as before, and because the customers service provider will still maintain the ANI/ALI information, there should not be any impact to 911.

3 Methodology

3.1 Donor LEC Responsibilities:

3.1.1. The Donor LEC, who does not have LRN technology, will donate uncontaminated thousands-blocks to the Pooling Administrator.

3.1.2. The Donor LEC will be responsible for marking the NPA-NXX as LNP capable in the applicable industry databases such as LERG and NPAC.

3.1.3. The Donor LEC will be responsible for suspending TN assignment in donated blocks.

3.1.4. The Donor LEC will be responsible for providing vacant code announcement.

3.1.5. The Donor LEC will be responsible for monitoring the LERG Assignment and taking the necessary actions when donated blocks are assigned.

3.2 Calls Originating from Donor LEC:

3.2.1. The Donor LEC will determine the routing of calls placed by its' customers through a local switch translation table.

3.2.1.1. Calls to telephone numbers (TN's) contained in the thousands-blocks retained by the Donor LEC will be routed on the local switch as before.

3.2.1.2. Calls to foreign Rate Centers will be routed as before.

3.2.1.3. Calls to TN's in donated blocks assigned to any LEC will be routed in accordance with the prevailing FCC and/or state interconnection rules. The non-LNP capable donating carrier will bear the query and transport expense of calls requiring N-1 dips.

3.2.1.4. Calls to TN's in donated blocks assigned to wireless carriers will be routed in accordance with the prevailing FCC and/or state interconnection rules. The non-LNP capable donating carrier will bear the query and transport expense of calls requiring N-1 dips.

3.2.1.5. Calls to TN's in donated blocks assigned to SP's that are LNP capable will require a dip to determine if the called TN has been ported to another carrier. Because this traditionally has been an N-1 carrier responsibility, the non-LNP capable donating carrier will bear the query and transport expense of calls to the porting in carrier.

3.3 Calls Between Service Providers serving an Extended Area Service (EAS)[1]

3.3.1. If the service provider originating the call is LNP capable the EAS call will be processed as described in 3.4.

3.3.2. If the service provider originating the call is non-LNP capable they will route the call using the default NPA-NXX routing. The non-LNP donating carrier will then route the call using a local switch translation table to determine the correct routing for the carrier having been assigned the donated and assigned block. The call will be processed as described in 3.2.1.5.

[1] See parking lot item 4

3.4 Calls Originating from Service Providers with LNP Capability:

3.4.1. The service provider will look to the number portability database (NPDB) and see that the NPA-NXX is marked as LNP capable and dip the number.

3.4.1.1. If the number has not been ported (as in the case of the Donor LEC's blocks) the NPDB will return a null and the call will be routed using the existing routing instructions for the holder of the block.

3.4.1.2. If the number has been ported (which would only be possible in the case of a service provider that obtains blocks from the Pooling Administrator) the NPDB will return the LRN of the service provider the TN was ported to and the call will be routed accordingly.

3.5 Migration of Type 1 Numbering Resources

3.5.1. It is believed that the Donor LEC can donate thousands-blocks containing only Type 1 numbering resources assigned to a single wireless carrier to the pool.

3.5.2. The Pooling Administrator would then immediately assign the donated block to the wireless carrier that has been using the Type 1 numbers.

3.5.3. Calls to and from the donated blocks containing Type 1 numbers would be the same as the processing of those calls identified in section 3.2.1.4 and 3.3.

4 Various Call Scenarios

TN Location		Service Provider						
Originating	Terminating	Originating	Terminating	LATA	Can Terminating TN be Portable	Routing Determined By	Traffic Delivered By	NPDB Dip By
Local Rate Center	Local Rate Center	Donor ILEC	Donor ILEC	Intra	No	Local SW Translation	Na	na
Local Rate Center	Local Rate Center	Donor ILEC	CLEC	Intra	Yes	Local SW Translation	Dedicated Trunk	CLEC
Local Rate Center	Local Rate Center	Donor ILEC	Wireless	Intra	Yes	Local SW Translation	Dedicated Trunk	Wireless
Local Rate Center	Foreign Rate Center	Donor ILEC	LEC	Intra	Yes	Local SW Translation	Dedicated Trunk or IXC	LEC
Local Rate Center	Foreign EAS Rate Center	Donor ILEC	LEC	Intra	Yes	Local SW Translation	Dedicated Trunk or IXC	LEC
Local Rate Center	Foreign Rate Center	Donor ILEC	Wireless	Intra	Yes	Local SW Translation	Dedicated Trunk or IXC	Wireless
Local Rate Center	Foreign Rate Center	Donor ILEC	LEC	Inter	Yes	Local SW Translation	Dedicated Trunk or IXC	LEC
Local Rate Center	Foreign Rate Center	Donor ILEC	Wireless	Inter	Yes	Local SW Translation	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	LEC	Donor ILEC	Intra	No	LRN	Dedicated Trunk or IXC	LEC
Foreign EAS Rate Center	Local Rate Center	LEC	Donor LEC	Intra	No	LRN	Dedicated Trunk or IXC	LEC
Foreign EAS Rate Center	Local Rate Center	Non-LNP LEC	Donor LEC	Intra	No	Local SW Translation	Dedicated Trunk or IXC	LNP LEC
Foreign Rate Center	Local Rate Center	LEC	CLEC	Intra	Yes	LRN	Dedicated Trunk or IXC	LEC
Foreign Rate Center	Local Rate Center	LEC	Wireless	Intra	Yes	LRN	Dedicated Trunk or IXC	LEC
Foreign Rate Center	Local Rate Center	LEC	Donor ILEC	Inter	No	LRN	Dedicated Trunk or IXC	LEC
Foreign Rate Center	Local Rate Center	LEC	CLEC	Inter	Yes	LRN	Dedicated Trunk or IXC	LEC
Foreign Rate Center	Local Rate Center	LEC	Wireless	Inter	Yes	LRN	Dedicated Trunk or IXC	LEC
Foreign Rate Center	Local Rate Center	Wireless	Donor ILEC	Intra	No	LRN	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	Wireless	CLEC	Intra	Yes	LRN	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	Wireless	Wireless	Intra	Yes	LRN	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	Wireless	Donor ILEC	Inter	No	LRN	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	Wireless	CLEC	Inter	Yes	LRN	Dedicated Trunk or IXC	Wireless
Foreign Rate Center	Local Rate Center	Wireless	Wireless	Inter	Yes	LRN	Dedicated Trunk or IXC	Wireless

5 Regulatory and Industry Guide Lines and Rules impacted

No attempt has been made to examine every regulation, industry guideline, or rule that may be impacted by allowing a non-LRN/LNP capable carrier to donate blocks to the pooling administrator. However, the following areas must be examined in more detail to determine the specific impact if this methodology were implemented as an interim solution for thousands-block pooling using LRN/LNP capability.

5.1. Regulatory

5.1.1. FCC

5.1.2. State Public Service Commissions

5.2. NANPA

5.2.1. NRUF Reporting

5.3. Pooling Administrator

5.4. NPAC

5.5. NANC

5.5.1. LNPA Working Group

5.6. INC

5.6.1. Thousands Block PA Guidelines

5.6.2. Central Office Code Assignment Guidelines

5.7. Telcordia® Routing Administration

5.7.1. LERG

5.7.2. BIRRDS

6 Potential Areas of Cost Impact

From the beginning, the concept of a non-LRN/LNP capable LEC donating thousands-blocks to the pool as a means of number resource conservation was viewed as an alternative to implementing LRN/LNP software and was not assumed to be without cost. There will be cost associated with any of the possible methods that might be implemented. Because of the wide cross-section of switches used by carriers, and the many other variables, no specific areas of cost impact are identified. It is the responsibility of implementing carriers to balance the cost-benefit of using the proposed methodology vs. traditional LRN/LNP technology.

Investigation by members of the working group have identified national data bases used by the industry for facilitating both the porting of telephone numbers and determining the correct routing of calls to porting capable telephone numbers. Changes will be required to examine the “portability” of a telephone number at the thousands-block level instead of the current code level to minimize inadvertent porting of numbers held by the non-LNP carrier.

6.1. Switch Hardware

6.2. Switch Software

6.3. Network architecture and facility requirements

6.4. OSS

- 6.4.1. Numbering Administration Donor LEC
- 6.4.2. Numbering Administration Other Carriers
- 6.4.3. Other cost as identified in 9.4.3 and 9.4.4

6.5. Industry Databases

- 6.5.1. BIRRDS
- 6.5.2. Ordering and Billing Form Issues
- 6.5.3. PAS
- 6.5.4. NAS

6.6. Number Portability Administration Center (NPAC)

7 Current Numbering Resources and LRN/LNP Status in Nebraska

7.1 North American Numbering Plan Administration Code Assignments

As of November 9, 2004 NANPA reported the following information on the code assignments in Nebraska.

Area Code	NXX Codes Assigned	NXX Codes Available	Forecasted Exhaust
308	300	477	2Q2026
402	707	76	2Q2006

7.2 Pooling Administration Utilization Reports

As of November 2, 2004 the Pooling Administrator identified that voluntary pooling in Nebraska has resulted in the following donation and utilization of thousands-blocks in the Nebraska

Area Code	Thousands - Blocks Assigned	Thousands - Blocks Available	Estimated Full NPA-NXX Codes Saved
308	26	303	7
402	123	704	16

7.3 Pooling Administration Forecast Reports

The Pooling Administrator identified the following forecasted 12-month block demand and current block inventory as of November 10, 2004.

Area Code	Forecasted Thousands - Blocks Demand	Thousands - Blocks Available
308	3	303
402	39	704

7.4 Nebraska Census Numbers

The current census numbers list the Nebraska population at 1,729,180. The areas of the state with the highest potential for growth and demand for resources are:

The three Metropolitan Statistical Areas

Omaha-Council Bluffs, NE-IA	666,007
Lincoln, NE	274,178
Sioux City, IA-NE-SD	26,585

The ten Micropolitan Statistical Areas

Grand Island, NE	68,125
Norfolk, NE	50,417
Kearney, NE	49,618
Hastings, NE	38,143
Scottsbluff, NE	37,529
Fremont, NE	35,989
North Platte, NE	35,679
Columbus, NE	31,215
Lexington, NE	26,607
Beatrice, NE	23,121

7.5 Nebraska LNP Suspension

Thirty-two Nebraska rural Local Exchange Carriers were granted a suspension of their LNP implementation date by the Nebraska Public Service Commission until January 20, 2006.

The implementing clause from the orders reads as follows:

"IT IS FURTHER ORDERED that such suspensions shall remain in effect until January 20, 2006, unless otherwise ordered by the Commission. Prior to the expiration of such suspension period, the Applicants may seek further relief under 47 U.S.C. § 251(f)(2) based upon the circumstances that prevail at that time. An application for further relief shall be filed on or before July 20, 2005, to give the Commission time to decide whether additional time is appropriate pursuant to 47 U.S.C. § 251(f)(2). "

7.6 Impact of Mandatory Pooling on Area Code 402 Exhaust Date

At the request of the Nebraska Public Service Commission NANPA has prepared a pro forma forecast of the exhaust date for the 402 Area Code based upon the assumption that an additional 89 rate centers would be reclassified from voluntary to mandatory pooling. Excluded from the 402 Area Code analyses are rate centers that are in a top 100 MSA or have only a single carrier present. This pro forma forecast also does not include codes that might be requested for use as an LRN.

Considering that the exact impact of mandatory pooling can not be determined until implemented and carriers have an opportunity to develop new methodologies for number utilization in Nebraska, it is currently estimated that the 402 Area Code exhaust date would move from 2Q2006 to 3Q2010 with the implementation of mandatory pooling in the rate centers in Nebraska that are not in a top 100 MSA or have more than one carrier present.

8 Review of Technical Issues

The results of the study and evaluation identified that if the Donor LEC performs all the established requirements of a LNP capable carrier participating in TBNP except those associated with the actual LRN/LNP switch capabilities, there are three "technical issues".

8.1 Routing of Calls

The routing of calls to telephone numbers rated in the local rate center to a wireless carrier that does not have a direct connection in the local rate center.

8.2 N-1 Carrier Responsibilities

Meeting the responsibilities of the N-1 carrier (the donor LEC) to perform a dip on calls to a TN's from a portable capable block. It is believed this could be addressed with a contractual arrangement between carriers using the donated blocks to perform the query and transport of the call for the donor LEC.

8.3 Attempted port of non-LNP TN

Attempted porting of a TN from a non-LNP capable donor carrier to an LNP capable carrier. Although LERG6 data contains separate data fields which would appear to allow coding of portability and pooling to the individual thousands blocks level, the information distributed via NPAC 1) does not look below the NPA-NXX level and 2) a code is marked as "portable" before it is marked as "pooled". Therefore, for the blocks donated by the non-LNP carrier to become available, the code must be first marked as "portable" and then the blocks would be considered "pooled" and available.

This could potentially cause a situation where a LNP capable carrier would attempt to execute a port-in request by a customer of a non-LNP capable carrier. The expected data flow from a request to port a number would begin when the porting in carrier issues a Local Service Request (LSR) to the non-LNP capable LEC. In theory, because the non-LNP capable LEC would never receive the LSR, the non-LNP capable carrier could neither issue a firm order confirmation notice (FOC) nor place the LSR in conflict. The porting in carrier at some point should then attempt to contact the non-LNP capable carrier manually and determine the status of the LSR. At that point the porting-in carrier would be informed that the non-LPN capable carrier could not support the port, would cancel the action, and notify the customer.

For a wireline-to-wireline port, if the porting-in carrier does not follow the established protocol, or an incorrect port-in order is issued, the porting-in carrier would complete the paper work and issue the necessary information to NPAC associating the LRN with the TN. On the effective date all carriers, except non-LNP capable carriers, would start processing calls based upon the LRN information. The difficulty in determining this problem would be compounded by the fact that calls from the local non-LNP capable carriers switch would terminate correctly, while all call from carriers "dipping the number" would not complete.

In the case of a wireline-to-wireless port, because wireless LNP validation (back office) systems rely on the LERG to determine the portability of an NPA-NXX, if a customer of the non-LNP donor carrier came into a wireless point of sale and ask to port their number to the wireless carrier, the port validation tools would indicate that the number was eligible for porting and the point of sale would initiate the port and provide the customer with a new handset which would have originating service, but would not have terminating service until the NPAC broadcast the Subscription Version with the TN associated with the wireless carrier's LRN. If the port should somehow complete (timeout or some other error allow completion) and the SV

is broadcast by the NPAC, only the customers of the non-LNP donor carrier would be unable to complete calls to the ported number.

9 Conclusions and Recommendations

The implementation of Local Number Portability (LNP) outside the Top-100 MSA's by the FCC has provided another tool for the telecommunications industry to address the conservation of numbering resources – thousands-block number pooling (TBNP). One of the underlying switch capabilities of LNP is Local Routing Number (LRN) capability. LRN enables a service provider to route calls based upon the LRN associated with a thousands-block within a NPA-NXX code instead of NPA-NXX routing. However, thousands-block number pooling can only conserve numbering resources in rate centers that have two or more carriers that are thousands-block number pooling capable. Only by classifying a rate centers as "mandatory pooling" can the maximum effectiveness of number conservation be achieved.

This working group was formed to evaluate a proposed method to conserve numbering resources in Nebraska. The proposed method may allow non-LRN/LNP capable incumbent local exchange carriers, who have obtained a suspension of LNP obligations, to donate uncontaminated thousands-blocks to the Pooling Administrator. Other carriers needing numbering resources in the rate center must be LRN/LNP capable and would apply to the Pooling Administrator for assignment of the donated resources.

The incumbent local exchange carriers in Nebraska who have obtained a suspension of their LNP obligations until January 20, 2006, represent a wide cross section of size, resources, and switch configurations. Of necessity the working group's evaluation is at a high level and does not examine each specific carrier's situation.

The working group evaluated the following areas to contrast the traditional method of implementing TBNP with the proposed method.

- ✓ Assumptions (Section 2.0)
- ✓ Donor LEC responsibilities (Section 3.1)
- ✓ Calls originating from the donor LEC (Section 3.2)
- ✓ Calls between service providers in a rate center with EAS (Section 3.3)
- ✓ Calls from carriers with LNP capability (Section 3.4)
- ✓ Migration of Type 1 numbers (Section 3.5)
- ✓ Potential rules, regulations, and guidelines requiring detailed review (Section 5)
- ✓ Potential cost impact (Section 6)

While there is consensus on the technical issues the proposed methodology would raise, consensus has not been reached on what impact these technical issues have upon the implementation.

9.1 Position of Rural Local Exchange Carriers who are non-LRN/LNP capable.

The working group representatives of the Nebraska rural Local Exchange Carriers who are non-LRN/LNP capable believe that

- ✓ the methodology proposed is intended to be an interim solution until a donor LEC is LRN/LNP capable,
- ✓ the potential gains in conserving numbering resources outweigh the potential risks,

- ✓ alternative methods can be implemented to address the areas of concern,

and therefore make the following recommendations.

9.1.1. The Nebraska Public Service Commission should seek a waiver from the FCC to conduct a trial of the methodology using a temporarily assigned NPA-NXX

9.1.2. If the basic trial is successful then additional testing must be conducted using an active NPA-NXX to verify operability when there is interaction by carriers who were not a part of this evaluation. The purpose of this trial is to verify that this method is truly transparent to carriers outside the rate center.

9.1.3. If this trial were successful then it would appear this methodology might be an alternative method of donating thousands-blocks to the pool to conserve numbering resources.

9.1.4. The rural Local Exchange Carriers who are non-LRN/LNP capable have agreed that in order to minimize the number of inadvertent ports, the non-LNP capable donor carrier would formally contact each telecommunication carrier operating in any of its service areas. In the communication, the non-LNP capable donor carrier would inform the telecommunications carrier that it is not LNP capable and provide an explanation as to why the NPA-NXX code is marked as portable.

In addition, the non-LNP capable donor carrier would establish an on-going intercarrier communications process with telecommunications carriers operating in its service areas that could be used to communication with a carrier in those situations where the carrier attempts to port a customer from a non-LNP carrier donor switch.

9.2 Position of the LNP Capable Industry Carriers

All local exchange carriers that operate switches that can be upgraded without switch replacement to support LRN routing should do so in order to participate in thousands block number pooling and to properly route calls from their customers to customers served with ported numbers.

The FCC has found that the functionality to support pooling (through LRN routing) can be separated from the functionalities necessary to provide LNP as a service to a LEC's end-users. As a result, the FCC ordered CMRS carriers to participate in thousand block number pooling a full year before they were required to offer LNP to their customers. The Nebraska Commission should adopt the same approach here by requiring all LECs to upgrade their switches with the LRN functionality in order to participate in pooling. By completing the switch upgrade before rolling out the LNP service, LECs will be able to test their network systems with porting-capable carriers and ensure that the eventual transition to full porting is smooth for customers.

The LNP Capable Carriers do not support the alternative options considered above to facilitate block donations by non-porting capable LECs. The proposed alternatives would shift significant burdens onto the LNP Capable carriers that have invested in their networks to comply with their pooling and porting obligations. Specifically, under the proposal, an LNP Capable carrier could be assigned a block of numbers from a non-porting capable LEC. If the LNP Capable carrier ports a number from that block to another compliant LNP Capable carrier it could be placed in a position to default route calls to the new LNP Capable carrier from the originating LEC, if the originating LEC fails to meet its federal obligation to properly dip and route its customers' calls. LECs will only be able to properly route their customers' calls if they upgrade their switches with the LRN capability—which is the same capability necessary for full

participation in pooling. All LECs in Nebraska should upgrade their switches with the LRN capability so they can both pool their numbers and properly route their customers' calls.

If the Nebraska Commission determines not to order LECs to implement the LRN functionality, it should not require compliant LNP Capable carriers to accept thousand number blocks from non-pooling capable LECs. Having met their federal LNP and pooling obligations, LNP Capable carriers should not be penalized and be forced to use donated blocks from non-LRN compliant carriers that will result in routing and call completion problems for their customers or customers of other LNP Capable carriers. Participation in using these donated blocks should be totally voluntary.

To truly conserve numbering resources in rural exchanges, the Nebraska Commission should require a rural carrier receiving a bona fied request (BFR) to implement full LNP and number pooling. This arrangement would allow those LEC exchanges with competing carriers that are smaller than about 6,000 numbers to utilize the existing NXX code to potentially support up to four other carriers in a competitive environment and provide true number conservation. LEC exchanges using numbering resources greater than 6,000 numbers would benefit in a similar manner if two or more NXX codes are being used. As identified in Section 7.6 above the life of the 402 NPA could be extended about 4 years using pooling and longer based on the use of full LNP.

9.3 Implementation Concerns

If the Nebraska Public Service Commission decides to implement the proposed pooling methodology then, the working group has identified the following areas which will require extensive review and modification to ensure a seamless implementation at a national level.

The following would need to occur to allow the proper LNP arrangements for all carriers except the non-LNP capable donor carriers.

Although LERG6 data contains separate data fields which would appear to allow coding of portability and pooling to the individual thousands blocks level, the information distributed via NPAC 1) does not look below the NPA-NXX level and 2) a code is marked as "portable" before it is marked as "pooled".

9.3.1. The Service Provider feed via the SOA to the NPAC to open an NXX for portability would have to be modified to accept an identifier for a non-ported thousands block in a ported NXX. The NPAC would need to modify its SOA interface to accept the non-ported thousands block in a ported NXX.

9.3.2. Internal NPAC software would have to be modified to handle the non-ported thousands block in a ported NXX so that:

9.3.2.1. A request from an LNP capable carrier to port a non-ported thousands block would be blocked with a special identifier sent back to the requesting LNP capable carrier.

9.3.2.2. The NPAC to SOA interface for all service providers would need to be modified to accept the new identifier message for the non-ported thousands block. This changes the NPAC from a NPA NXX design to an NPA NXX-X design.

9.3.3. LNP capable carriers would need to modify their OSSs to accept the new identifier message for the non-ported thousands block.

9.3.4. Also to help alleviate inadvertent ports based on a customer's port request, the LNP capable carrier would need an automated access from their Service Order Entry

systems to validate a non-portable thousands block via an internal or external LERG database.

9.3.5. An estimated development time of 12 to 18 months plus an implementation time of 12 to 18 months would be needed by the industry to accomplish the above arrangements.

9.3.6. Estimated cost for the above:

9.3.6.1. The total estimated NPAC costs for item 9.3.1 and 9.3.2.1 cannot be estimated at this time but it is believed would be significant.

9.3.6.2. Because NPAC cost can not be estimated at this time, estimated LNP capable carrier SOA costs for item 9.3.2.2 also cannot be estimated at this time

9.3.6.3. Estimated LNP capable carrier costs for item 9.3.3 is $350,000.

9.3.6.4. Estimated LNP capable carrier costs for item 9.3.4 is $200,000.

9.3.6.5. There will be other LNP capable carrier costs such as training, changes in methods and procedures, documentation, etc.

9.3.6.6. Assuming just 10 LNP capable carriers, their costs would be estimated to be $5.5million not considering the NPAC and SOA costs. A better LNP capable carrier costs estimate would be a count of all CLEC, cable, and wireless carriers in Nebraska times $500,000 and add the NPAC and SOA costs for each carrier for a total of the above arrangements.

9.4 Cost Recovery

Since the LNP capable carriers have already spent monies on LNP and in most cases are obtaining LNP end user surcharges from their customers, or have already completed receiving end user surcharges from their customers, how will these carriers get recovery for the above costs?

The LNP capable carriers believe that the cost causers, the non-LNP capable donor carriers, should be responsible for the above costs.

10 Glossary

1. BIRRDS – Business Integrated Routing & Rating Database System
2. INC – Industry Numbering Council
3. IXC – Inter-exchange Carrier
4. LERG – A document issued by Telcordia that is used to identify NPA-NXX routing and homing information, as well as network element and equipment designation. It contains a listing of local routing data such as destination codes, switching entities, rate centers and locality information by LATA. The LERG is an essential tool for network planning
5. LNP – Local Number Portability
6. LRN – Local Routing Number
7. NANPA – North American Numbering Plan Administration
8. NAS (NANP Administration System)
9. NPAC – Number Portability Administration Center. This center administers the Service Management System (SMS) regional database, managed by an independent third party, to store all Local Number Portability data, including the status of a ported telephone number, the current service provider and the owner of the telephone number.
10. NRUF (Numbering Resource Utilization/Forecast)
11. PA – Pooling Administrator
12. RDBS – Routing Data Base System
13. TBNP – Thousands Block Number Pooling
14. TN – Telephone Number

11 APPENDIX A

Participants

This working group meet collectively via a telephonic conference bridges held on the following dates:

July 29, 2004
August 4, 2004
August 11, 2004
September 8, 2004
September 21, 2004
October 27, 2004

Members of the working group which participated in one or more calls were:

Name	Company
Mark Lancaster	AT&T
Ann Cummins	AT&T Wireless
Steve Rice	Frontier
Jim Weston	Great Plains
Bruce Armstron	NeuStar
Linda Hymans	NeuStar
Don Gray	NPSC
Gene Hand	NPSC
Tyler Frost	NPSC
Craig Wiseman	Qwest
Mike Whaley	Qwest
Susan Sampson	Qwest
Dave McElhose	RVW, Inc
Marty Nore	RVW, Inc
Hoke Knox	Sprint
Dan Davis	Telec
Ken Beade	Verizon Wireless
Ann Hoskins	Verizon Wireless
Chris Duckett-Brown	Verizon Wireless
Joanne Edelman	Verizon Wireless
Nita Little	Verizon Wireless
David Armey	Verizon Wireless
Rob Clair	Verizon Wireless
Jeff Harmon	Verizon Wireless

Over 125 resource-hours were spent in the six conference calls, not counting the independent review, study and evaluation performed by each member.

12 Parking Lot

:

1. Where should the notification of Portability be made for LERG information?
   Addressed in 2.8, 2.11, 3.1.2, 3.1.5, and 8.3
2. What are the requirements for a Carrier to donate blocks to the PA and receive information about the status of the donated block (activation?).
   Addressed in 3.1.5
3. How do we deal with a donated block assigned to a carrier that become contaminated and then subsequently leaves the area/business?
4. How would inter-carrier EAS calls be processed?
   Section in 3.3 addresses intra-LATA inter-carrier EAS calls. The industry LNPA working group, Issue XXX is addressing the inter-LATA inter-carrier EAS calls.
5. Carriers that participate in TBNP are obligated to act as the default carrier when calls are routed to their switch undipped. For all NXX codes marked as portable, the terminating switch should be able to determine that the Forward Call Indicator or M bit is set to "Yes" e.g. the query has been done. If the M bit is not set to "Yes", e.g. a dip was not done, the terminating switch is obligated to provide the default query to determine the correct switch for call termination and than route the call accordingly. e.g. N-1 responsibility.
   Addressed in 3.2.1.5 and noted in 8.2
6. Linda Hymans will try to find out if “portability” can be identified at the block level instead of the code level.
   Due to the way NPAC data is marked and distributed a NPA-NXX code must first be marked as portable at the code level and then marked pooled at the block level.